SUBJECT: Mission Services Customer Forum (MSCF) Meeting

DATE: May 21, 2002

PLACE: Goddard Space Flight Center, Building 8, Auditorium

TIME CONVENED: 1:00 p.m. **TIME ADJOURNED:** 3:45 p.m.

ATTENDANCE: The list of attendees follows these minutes.

NOTE: Referenced presentations are located within the MSCF website at http://npas19.honeywell-tsi.com/mscf/mscf_20020521/mscf_presentations.html.

I. INTRODUCTION

Mr. Al Levine (NASA/GSFC) convened the third Mission Services Customer Forum (MSCF) on May 21, 2002 at the Goddard Space Flight Center (GSFC) Building 8 auditorium. Mr. Levine welcomed the attendees, both those present in the auditorium and those attending via teleconference. Mr. Levine stated that the third forum had been redesigned to encourage greater interactivity and move the issues discussion to the forefront. A survey was conducted at the end of the last MSCF. Some of the results were incorporated into this forum; other suggestions will be incorporated into future forums. Mr. Levine asked that the attendees take the time to complete a survey at the end of this forum. Comments may also be submitted at the MSCF website at http://npas19.honeywell-tsi.com/mscf/mscf_comments.html

II. REVIEW OF THE CUTOMER COMMITMENT PROCESS

Mr. Jon Walker (GSFC/NASA) provided a presentation on the Customer Commitment Process (refer to the presentation, *Review of Customer Commitment Process [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/commitcustomer.pdf*]*) beginning with a discussion of the personnel and their associated roles and responsibilities during the mission lifecycle (as portrayed by the Mission and Data Services Implementation/Support Timeline). The Mission Commitment Manager (MCM) is a civil servant position. There is one MCM each for Code S, Code Y, Human Space Flight (HSF), Reimbursables and Special Projects. GSFC has approximately 75 Project Service Level Agreements (PSLA). The Customer Service Representative (CSR) is a contractor/Consolidated Space Operations Contract (CSOC) position. The MCM is the lead assigned by the GSFC Center Customer Commitment Manager (CCCM) (Mr. Walker). The CSR is assigned by the CSOC Customer Service Department (CSD).

Activity begins at the Pre-AO/AO determination phase and continues throughout the Mission Operations Phase. The team of civil servant/contractor personnel works on producing the required documentation (PSLA, Detailed Mission Requirements document [DMR]), conducting

the necessary reviews (Critical Design Review [CDR] and Operational Readiness Review [ORR]), and participating in mission operations.

Mr. Walker also reviewed the MCM-CSR roles by Mission Phase/Mission Development Phase.

III. ACTION ITEM REVIEW

Mr. Al Levine reviewed the previously assigned action items. Refer to http://npas19.honeywell-tsi.com/mscf/mscf_actionitems.html *for the current status of action items.*

Action Item	***Status***	***Disposition***
MSCF-11-15-03	The Landsat-7 DMR has not been updated. Similarly, 6 other missions (Aqua, GP-B, TDRS-I & J, ADEOS-2 and SAGE-3) also have DMRs that require work before acceptance by the Code 451 CCB.	Remains open (will check with Al).
MSCF-11-15-04	This item was carried as a reminder and is no longer required. This item is CLOSED.	Closed
MSFC-11-15-08	This item remains open.	Open
MSCF-02-21-02	This item remains open.	Open
MSCF-02-21-03	Ms. Shuby Ambardekar provided a detailed response to this item (refer to the presentation, *Data Services Utilization Summary*). A comparison of the planned utilization versus the actuals to date was completed. The Ground Network (GN) utilization is at 37 percent for Fiscal Year (FY) 02 through April. The Space Network (SN) utilization is at 58 percent for FY02 through April. Some projects have exceeded their projections due to testing requirements or additional need due to mission contingencies. The requirements in the DMR/Mission Requirements documents against the PSLA will be compared. Projects will be asked to reconcile the DMR and PSLA requirements. Updates will be made as required.	Closed
MSCF-02-21-04	Nothing has been finalized. This item remains open.	Open
MSCF-02-21-05	Mr. A. Levine provided a detailed response to this item (refer to the presentation, *TDRS Naming Conventions*). The current Tracking and Data Relay Satellite (TDRS) naming convention (TDE, TDW, and TDS) has been in place since the launch of TDRS-1. The original convention was created for what was to be a smaller constellation (two operational spacecraft and one on-orbit spare). The SN is transitioning to an all-numerical naming convention reflecting the longitudinal location of each TDRS. The new naming convention will accommodate growth in the TDRS operational fleet. A survey is being conducted to determine the readiness of Mission Operations Control Centers (MOCC) to effect the transition. The survey is online within the MSCF website; the URL is http://npas19.honeywell-tsi.com/mscf/tdrss.html. Copies of the survey were also distributed at the	Open; in progress

	forum.	

IV. OPEN FLOOR DISCUSSION

Mr. Al Levine opened the floor to discussion items and questions.

- ***Question:*** "Why the TDRS naming change was being made now and what if a project was not ready" was asked.

  Answer: Mr. Levine stated that the change would accommodate the increasing TDRS fleet, would simplify the system operationally, and provide a functionally descriptive name for the spacecraft being used. Mr. Jeff Glass stated that the new naming convention would allow the system to accommodate co-located spacecraft. Mr. Levine stated that the survey is one tool to help determine which projects are or are not ready and what the impact would be if projects were not ready. Mr. J. Glass stated that if only a few projects were not ready, it might be possible to schedule manually.

V. LOADING AND RESOURCE ISSUES

Mr. Al Levine discussed loading and resource issues (refer to the presentation, *Loading and Resource Issues [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/loading.pdf*]*). Current customer space communications service commitments will continue to grow over the next few years. The GN is experiencing modest expansion with a downward trend starting in FY03. The Space Science missions are moving to the High Earth Orbit (HEO) environment. SN demand will be relatively level in the near term. GN and SN loading are forecasted to have sufficient capacity for new users. Periods of time for both networks when contention for resources will occur are expected. Better planning will require more complete detailed ground service requirements from the customers. High priority support can create short periods of time where some impacts to other spacecraft requirements may occur. High visibility science requirements may drive resource utilization. There has been a recent increase in the number of launch customers requesting dual (simultaneous) Single Access (SA) links for several hours of continuous support. The current policy is to commit to one SA link with a second link scheduled as available.

VI. GN EVOLUTION

Mr. Roger Clason provided a GN Evolution presentation (refer to the presentation, *Ground Network Evolution Planning [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/gnevolv.pdf*]*). Management responsibility for the GN was recently transferred from the Human Exploration and Development of Space (HEADS) enterprise to the Earth Science Enterprise (ESE). Management of the CSOC GN factory was transferred from Houston to WFF. The GN is a very diverse entity operating as an integrated network of independent service providers. Service providers include the Universal Space Network (USN), DataLynx, the University of Chile, and Johns Hopkins University Applied Physics Laboratory (APL). For planning purposes, the GN services are divided into four functional areas: Orbital High Rate, Orbital Low Rate, Space Shuttle, and Sub-orbital. High-

level capability by service provider was briefly summarized by functional category by Mr. Clason. Future activities under consideration include: the further commercialization of the polar network, replacement of the aging MILA and Ponce de Leon stations, and evolving the sub-orbital services to meet the needs of the growing sub-orbital customer community.

VII. SPECTRUM MANAGEMENT

A. Mr. Frank Stocklin (Acting GSFC Spectrum Manager) gave a presentation on Spectrum Management (refer to the presentation, *Spectrum Management [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/spectrum.pdf*]*). Mr. Stocklin reviewed the roles and responsibilities of the GSFC Spectrum Management function, reminding the projects that they are supposed to get licensed. The Spectrum Manager facilitates coordination of frequency assignments with other national and international agencies and obtains Radio Frequency (RF) Interference (RFI) protection on a national and international level. The use of the RF spectrum is governed by treaty, or on an exceptional basis, by agreements between countries. Nationally, in the United States and its possessions, the Federal Communications Commission (FCC) and The National Telecommunications and Information Administration (NTIA) govern the use of the RF spectrum. The NTIA performs its functions through the assistance of the Interdepartment Radio Advisory Committee (IRAC) and its subcommittees. The National Aeronautics and Space Administration (NASA) is an active member of the IRAC.

B. Mr. Stocklin reviewed the Non-deep Space spectrum (i.e., <2 million km) available to GSFC missions. Primary and secondary users are assigned and the primary user can ask the secondary user to shut down operations. At the next international meeting, NASA will be requesting X-band allocation for space research.

C. Mr. Stocklin provided a definition of the Space Services most commonly used by GSFC: Space Research Service (SRS), Earth Exploration-Satellite Service (EESS), Space Operation Service (SOS), and Inter-Satellite Service (ISS).

D. There are some considerations for Space Science Service allocations in the S-band range. The band best accommodates low-data rate users. The band provides comm links in all weather. RFI may increase due to more intense use by terrestrial services of shared bands and adjacent bands. Unwanted emissions in the SRS deep space bands should be controlled per established guidelines.

E. There are some considerations for Space Science Service allocations in the X-band range. The band best accommodates low to moderate data rate EESS users. Unwanted emissions from EESS transmitters into the adjacent SRS deep space band should be controlled per established guidelines.

F. There are some considerations for Space Science Service allocations in the Ka-band range. The 22.55 – 23.55 GHz and 25.25 – 27.5 GHz bands are allocated to space-to-space links and the 25.5 – 27 GHz band is allocated to EESS (space to earth) links on a primary basis world wide. The Ka-band allocations allow for high data rate telemetry. In 2003, NASA expects a wideband allocation in either or both the 15-GHz and 26-GHz bands to accommodate high-rate Space Research downlinks.

G. The current X-band allocations are and will continue to be congested. However, currently there is no ground infrastructure to support either the EESS or Space Research missions. High-data rate future missions should be encouraged to consider transitioning to the Ka-band.

H. Mr. Stocklin reviewed the frequency authorization process for government systems and provided a website address (http://classwww.gsfc.nasa.gov/gsams/) for additional information and guidance.

I. Issues include protection of the 2290 – 2300 MHz DSN band, X-band mission filtering, obtaining Ka-band allocation for Space Research missions, and the lack of Ka-band ground infrastructure. DTRS Multiple Access (MA) and S-band Single Access (SSA) users encroach on the DSN band. Testing is being done for a filter. This mitigates, but does not solve the problem. For X-band missions, the DSN works with the Spectrum Management Office when conflicts arise. A discussion is needed with the Network Control Center (NCC), Schedulers, and projects to ensure that coordination takes place to mitigate encroaching on the DSN band.

VIII. SN STATUS

Mr. Al Levine provided status of the SN (There was no presentation.). The process continues to recover TDRS I. Until the satellite is in the proper orbit, it is still a Boeing spacecraft. TDRS J launches at the end of this year.

IX. FLIGHT DYNAMICS FACILITY STATUS

Ms. Shubha Barriga provided an Flight Dynamics Facility (FDF) status (refer to the presentation, *Flight Dynamics Facility (FDF) Status [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/fdf.pdf*]*). Ms. Barriga reviewed the upcoming missions to be supported. FDF has received official notification to move from Building 28 to Buildings 13 and 25. The move will be a phased in with the move of Building functions to the White Sands Complex (WSC). The move is currently planned for July 3003. The Jet Propulsion Laboratory (JPL)/DSN plans on changing the tracking data format from TRK-2-15A to TRK-2-34 for the DSN stations. The change affects all current DSN-supported missions. The FDF is implementing modifications to orbit determination software to accommodate the new format. The software modifications will be complete by September 2002.

X. DSMC STATUS

Ms. Cathy Barclay gave a Data Services Management Center (DSMC) status (refer to the presentation (*Data Services Management Center (DSMC) Status [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/dsmc.pdf*]*). The DSMC consolidates GN and SN network management at WSC. The DSMC is technically operational. GN legacy scheduling transitioned October 25, 2001. GN 9-meter/STS/Emergency-Contingency customers transitioned May 9, 2002. The SN ORR is scheduled for June 11 at WSC. The transition is scheduled for June 17. GN Automated Scheduling ORR is scheduled for June 20. The transition is planned for July 1 – 29. CSOC security is coordinating with DSMC and Wallops Flight Facility (WFF) on WOTIS password updates. Training and transition activities for Forecast Scheduling and Real Time Scheduling are progressing well. Daily Vector Transmission training is nearing completion. A Network Advisory Message (NAM) will be issued with transition details for the June 17 cut over. Mr. H. Gordon/ADEOS-2, had a concern for ADEOS-2 internal testing and testing with the Japanese in August. Ms. Barclay stated that the project is still on schedule for WFF

scheduling transition. If problems are found, fixes can be delivered to WOTIS after the HSF freeze is over. This is consistent with the operations today.

XI. SPACE SCIENCE STATUS

Mr. Patrick Krause provided a Space Science status (refer to the presentation, *Space Science Mission Operations Project Status Update [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/spacesci.pdf*]*). The Office of Space Science (OSS) Divisions at NASA Headquarters are in charge of the GSFC Space Science missions. Every two years, OSS assembles an independent panel of scientists to conduct a senior review of all on-orbit missions in a particular science theme. The Structure and Evolution of the Universe (SEU) senior review was conducted this summer with results expected in August. The Sun-Earth Connection (SEC) senior review will be conducted next summer. These reviews determine which missions are continued. GSFC Code 440 has GSFC management responsibility for on-orbit Space Science missions: Hubble Space Telescope (HST) and the Space Science Mission Operations project (SSMO) including SEU projects such as FUSE and RXTE and SEC projects such as ACE, FAST, TIMED, and RHESSI. TIMED and RHESSI recently transferred to Code 440. Missions from development phase typically transfer to SSMO 30 – 90 days after launch. Mr. Krause stated that there are some concerns: the GN capacity, the lack of an Interface Control Document (ICD) between GSFC and the DSN, 26-meter and 34-meter upgrade impacts.

XII. HSF STATUS

Mr. Ted Sobchak gave the HSF status (refer to the presentation, *Human Spaceflight [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/hsf.pdf*]*). Mr. Sobchak is the MCM for Code M missions. Mr. Sobchak reviewed some of the highlights from the Space Shuttle manifest. STS-110 marked the first use of the Solid State Recorders (SSR). Six passes were supported without anomaly. The recorders provide more efficient ops recorder dumps allowing greater science capacity. STS-111 is the Canada Arm replacement. STS-107 will be the last science mission for a period of time. The manifest is moving from six to seven missions a year to four missions a year. The four missions will concentrate on International Space Station (ISS) activity. The program will also be focusing on landings at the White Sands Space Harbor (WSSH) vice Edwards Air Force Base (EAFB). Mr. Sobchak provided a review of the ISS assembly sequence. Virtual spacecraft scheduling is being used more frequently. The SN can provide simultaneous support of Space Shuttle and ISS via one TDRS antenna.

- ***Question:*** (Mr. Al Levine) Has the Virtual Spacecraft Scheduling capability been discussed with the HST project?
  Answer: Mr. Sobchak stated that such a discussion is planned later in time.

The CANDOS communications demonstration is scheduled for the STS-107 mission. CANDOS is a GSFC project designed to demonstrate the versatility of the GSFC Low Power Transceiver (LPT). The LPT can be used for GPS navigation, GN and SN communications, on-orbit LPT reconfiguration, and Range Safety. Communications will be via TDRSS, DFRC, Merritt Island (MIL), and WFF. The transceiver is software programmable.

XIII. DOCUMENTATION READINESS

Ms. Shuby Ambardekar discussed documentation readiness (refer to the presentation, *Documentation Readiness, DMR/PSLA Status [*http://npas19.honeywell-tsi.com/mscf/mscf_20020521/document.pdf*]*). FY02 PSLAs are being signed for funding commitments. DMRs status is being evaluated for missions due to launch in the next 6 months. FY03 PSLAs will be circulated for signatures on requirements agreements over the next 2 months. FY03 PSLAs will be circulated for signatures for funding commitments between August and September. Signatures for FY03 PSLAs with funding commitments will be expected by September 30, 2002. CSOC costs and Project Budgets are being submitted for FY03 through FY08. FY03 requirements scrub for PSLAs will begin in June/July after the CSOC Program Operating Plan (POP) is submitted. Changes to requirements in FY03 may alter CSOC costs to the projects. Changes to one project may impact costs to other projects if significant reductions in requirements are identified. Such reductions can affect facility costs. Schedules for preparing out-year operating plans need to accommodate a requirements review before the SOC costs are derived.

XIV. NEW ACTION ITEM REVIEW

No formal action items were assigned at this meeting.

Approved by:_____
Mr. Al Levine, Chairman
Goddard Space Flight Center, Code 451

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